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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
KITOV, ZEEV

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/829,339	Applicant(s) CHAN ET AL.	
	Examiner Zeev Kitov	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 5, 7 - 13, 15 - 20* is/are rejected.

7)☒ Claim(s) *6 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Examiner acknowledges a submission of the amendment and arguments filed on March 31, 2003. Claims 1, 3 and 4 are amended. Amendment has overcome objection to Specification. Applicant's arguments filed on March 31, 2003 have been fully considered but they are not persuasive (see Response to Arguments).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 – 5, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Muelleman (US 5,448,443). Muelleman discloses all the elements of Claim 1 and 17, including a device for protecting a ground fault circuit interrupter including a surge protector component (element MOV in Fig. 17), and filter (elements T1 and C in Fig. 17) connected across the power inputs of the GFCI circuit for filtering transient power surges to the surge protector component. Connection of the filter across the power inputs of the GFCI circuit is inherent property of the Power Conditioner Device (see Abstract).

Regarding Claim 2 and 18, Muelleman discloses a metal oxide varistor (element MOV in Fig. 17).

Regarding Claim 3 and 18, Muelleman discloses the low pass filter (elements T1 and C in Fig. 17).

Regarding Claim 4, Muelleman discloses an LC filter having a filter capacitor and inductor (secondary coil of T1 and C in Fig. 17).

Regarding Claim 5, Muelleman discloses the filter capacitor as a bypass capacitor (element C in Fig. 17). This capacitor provides an alternating-current path of comparatively low impedance around the L and N outputs (power supply inputs of the GFCI).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 7, 8, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muelleman in a view of Newman (US 5,555,150). As was stated above, Muelleman discloses all the elements of Claim 1. But regarding Claim 7, it does not disclose a spark gap device. Newman discloses the spark gap device (element 26 in Fig. 1), the MOV (element 28 in Fig. 1) used together with the low pass LC filter (elements 18 and 16a, 16b in Fig. 1). Both patents have the same problem solving area, namely providing effective surge suppression. Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to have used both spark gap device together with MOV and low pass filter, because as Newman states (col. 1, lines 41 – 67), spark gap devices are efficient in suppressing a high voltage surge with a current rate of up to 20,000 A. But since they are relatively slow devices, a leading portion of the surge may remain intact. That is why a combination of the spark gap device together with low pass filter and MOV is an optimal solution.

Regarding Claim 8, Newman discloses the overvoltage prevention circuit (element 26 in Fig. 1) and the filter (elements 18 and 16a, 16b in Fig. 1).

Regarding Claim 19, Newman discloses a spark gap device connected across the power inputs (element 26 in Fig. 1).

Regarding Claim 20, Newman discloses the spark gap device (element 26 in Fig. 1) and the filter (elements 18, 16a and 16b in Fig. 1) limiting the current applied to the surge protection element.

6. Claims 9 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over LM1851 Data Sheet from National Semiconductor Corp. in a view of Paradise, US Patent 5,617,284. LM1851 discloses most of the elements of Claim 9, including a ground fault circuit interrupter (element LM1851 in Fig. 2); a surge protector component connected across a set of power inputs (element MOV in Fig. 2), a bridge circuit with plurality of diodes (not marked in Fig. 2), a GFCI processor connected to the bridge circuit (element 1851 in Fig. 2), the ground transformer connected to the bridge circuit (element GND/NEUTRAL and HIGH coils in Fig. 2), a sensing transformer connected to

GFCI processor (element SENSE and 1000:1 coils in Fig. 2), a solenoid (element circuit breaker coil in Fig. 2), a relay mechanism activated by solenoid (two N.C. contacts above the solenoid in Fig. 2). But it does not disclose a bypass capacitor connected to the surge protector and a filter connected across the power inputs for filtering transient power surges to the surge protector. Paradise discloses a surge protector component (element MOV1 in Fig. 21 and MOV2 in Fig. 3) with a bypass capacitor connected to the surge protector component (element C1 in Fig. 2 and C6 in Fig. 3) and a filter connected across the power inputs for filtering transient power surges to the surge protector (elements L1 and capacitors C6 in Fig. 3). Both patents have the same problem solving area, namely providing efficient surge protection of the electrical appliances. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Paradise filtering solution in the LM1851 circuit, because as Paradise states (col. 4, lines 55 – 63), a capacitor placed in parallel with the MOV helps in detecting and clamping transients. The capacitor charges during a transient and the MOV will respond faster to the transient than otherwise. As to the LC filter, according to him (col. 5, lines 1 – 4), the filter helps prevent high frequency spikes from passing through. An alternative solution for improving the surge protection of the GFCI circuit would be a moving the MOV (Fig. 2 in LM1851) from the power input to a position in parallel to the capacitor 0.01/400. This will improve the surge protection of the GFCI circuit in accordance with teaching of both LM1851 and Paradise, but will expose two current transformers to the surges. To protect them, additional protection

elements will be necessary. Selection of appropriate solution is up to the designer according to other requirements of his Specification.

Regarding Claim 10, both Paradise and LM1851 disclose a metal oxide varistor (MOV).

Regarding Claims 11 and 12, Paradise discloses a low pass filter having both capacitor and inductor (elements L1 and C6 in Fig. 3).

Regarding Claim 16, Paradise discloses the filter capacitor as the bypass capacitor (elements C6 in Fig. 3). The capacitors provide an alternating-current path of comparatively low impedance around the GDT1 and MOV devices (see Fig. 3).

Regarding Claim 15, Paradise discloses a spark gap device connected across the power inputs (element GDT1 in Fig. 3).

Regarding Claim 16, Paradise discloses the overvoltage prevention circuit (element GDT1 in Fig. 3) and the filter that limits the current applied to the surge protection element (elementsL1 and C6 in Fig. 3).

Allowable Subject Matter

Claims 6 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive. Regarding applicant arguments with respect to rejection of Claims 1- 5,17 and 18 under U.S.C. 102(b), that "Muelleman does not disclose how the MOV within a GFCI can be modified" (page 9, lines 12 – 13) and his statement that "the device of Muelleman is not integral part of the internal circuit of a GFCI" (page 9, line 9) are lacking the ground, because of following reasons:

(a) The features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the

specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(b) As to recited in the arguments integration of the MOV into GFCI, it has been held that forming in one piece an article which formerly been formed in two pieces and put together involves only routine skill in the art. Howard vs. Detroit Stove Works, 150 U.S. 164 (1893).

Re rejection of Claims 9 – 16, the same response as cited above for Claims 11 – 5, 17 and 18.

Re Claim 4, Muelleman discloses all the elements of the claim.

Re rejection of Claims 7, 8, 19 and 20 under U.S.C. 103(a), an applicant misrepresents Newman disclosure stating: "a ringing circuit is not considered to be a low pass filter" (page 10, line6). The inductor (element 18 in Fig. 1) together with capacitors (elements16a and 16b in Fig. 1) form the low pass filter, since it is well known in the art of Electrical Engineering that when an output is taken as a voltage drop across capacitor of the LC circuit, frequencies higher than a resonant frequency are suppressed. This is inherent property of the LC circuit. Therefore, a voltage supplied to the MOV (element 28 in Fig. 1) is low-pass filtered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose telephone number is (703) 305-0759. The examiner can normally be reached on 8:00 – 4:30. If attempts to

reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703) 308-3119. The fax phone numbers for organization where this application or proceedings is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.